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Description of a new Machine for raising Water for the Irrigation of Land; by Denys de Montfort.

(From the Bibliotheque Physico-Economique.)

Nothing can be of greater advantage to the cultivators of land than to have plenty of water at their disposal, as nothing is more easy than to cut ditches or furrows in the land to be filled with water, that it may be always at hand when it is required: but, notwithstanding the vicinity of water, it frequently happens that the furrows cannot very easily be filled on account of various local circumstances. Many machines have been contrived for the purposes of raising water for irrigation, but in general they have not attained the proposed end in every respect, as some are very expensive, and consequently beyond the means of many cultivators, and others take up too much time and labour. There is, besides another sort, which are subject to certain conditions and localities, and of this description are those which are put in motion by the wind or by streams.

In this class may be ranked Montgolfier's hydraulic ram; which, although a very ingenious invention, absolutely requires a fall or current of water, as a moving force to raise the water above its level; and if it is placed on the borders of a river it encumbers the bed of the river, and impedes the navigation. Struck with these inconveniences, and especially that this machine which in other respects is so complete, remains immoveable, and is of no use in ponds and standing waters, we have directed our efforts to the contrivance of a simple machine, not expensive in its first construction, easily kept in order, and capable of raising water under any circumstances even to the summit of a mountain: and in order to obviate every objection, as well as to embrace every required object, we have strictly confined ourselves to the following conditions:

1st. Simplicity in the construction.

2d. That it should be maintained and repaired at a trifling expense.

3d. That it should be easily removed and transported from place to place.

4th. That it should be capable of being applied to the rapid and confined streams, as well as to ponds and other stagnant waters.

5th. That it should require no subterraneous conduits.

6th. That it should be capable of being kept in a place for any length of time.

7th. That it should require but little labour to work it.

8th. That it should be capable of being put in motion by any moving power whatever.

The whole machine consists only of a common ladder, made strong, and with square sides, furnished with pullies, and a common pair of bellows fixed to it, which are also made as strong as possible. In the place of an end or short tube these bellows have a prolonged tube attached to the neck, or rather a succession of tubes screwed on to each other, and which contain a valve at their base, that closes by its own weight, and by that means prevents the water above it from returning. The bellows have besides a handle on the moveable wing, which serves to hold the cord that is made to put the whole in motion. And this cord, which runs over the four pullies, is joined at the top by a ring, which being seized by the hands, and moved to the right and the left, puts the bellows into play, raises the water in the ascending tube, and corducts it by means of the bent tubes wherever it is wanted.

Now, the fact is, that the bellows thus put into motion have the same effect in water as in the air, which is pushed by the pressure of the fluid with which it is filled, and has no issue but by the tube, supposing the holes in the side of the bellows to be closed by the valve. And whatever be the length and diameter of the ascending tubes, the water will be raised exactly in proportion as the power employed exceeds its weight.

This machine is so simple, that it is surprising it should not have occurred to any person before.

Method of giving a fine Nankeen colour to Cotton Stuffs; by M. Hess.

(From the Bulletin des Neuesten.)

A decoction of willow leaves is made with pure water; it is passed through a piece of linen, and a solution of glue and water is poured on it until the decoction ceases to be turbid. The willow leaves contain, besides the colouring principle, a considerable portion of tannin, which tarnishes the colour that is to be given to